

Report Date:
27-Jun-17 10:17**Laboratory Report**
SC35772Gulf Oil L.P.
281 Eastern Avenue
Chelsea, MA 02150
Attn: Andrew P. AdamsProject: Gulf Terminal - Chelsea, MA
Project #: Gulf Chelsea

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110
Connecticut # PH-0777
Florida # E87936
Maine # MA138
New Hampshire # 2972/2538
New Jersey # MA011
New York # 11393
Pennsylvania # 68-04426/68-02924
Rhode Island # LAO00348
USDA # P330-15-00375
Vermont # VT-11393

Authorized by:

Christina White
Laboratory Director

A handwritten signature in black ink that reads "Christina A. White".

Eurofins Spectrum Analytical holds primary certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.

Please note that this report contains 10 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Eurofins Spectrum Analytical, Inc.

Eurofins Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Eurofins Spectrum Analytical, Inc. is currently accredited for the specific method or analyte indicated. Please refer to our Quality web page at www.spectrum-analytical.com for a full listing of our current certifications and fields of accreditation. States in which Eurofins Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey, Pennsylvania and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (PA-68-04426).

Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.

Sample Summary

Work Order: SC35772
Project: Gulf Terminal - Chelsea, MA
Project Number: Gulf Chelsea

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SC35772-01	Outfall 003	Surface Water	09-Jun-17 15:00	13-Jun-17 15:05

CASE NARRATIVE:

Data has been reported to the RDL. This report excludes estimated concentrations detected below the RDL and above the MDL (J-Flag).

All non-detects and all results below the reporting limit are reported as "<" (less than) the reporting limit in this report.

The samples were received 3.6 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

Analyses for Total Hardness, pH, and Total Residual Chlorine fall under the state of Pennsylvania code Chapter 252.6 accreditation by rule.

June 27, 2017 Report Revision Case Narrative:

This report has been revised to correct analyte list per COC.

See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.

SW846 8260C

Calibration:

1705025

Analyte quantified by quadratic equation type calibration.

Naphthalene

This affected the following samples:

1709889-BLK1
1709889-BS1
1709889-BSD1
Outfall 003
S704674-ICV1
S705362-CCV1

SW846 8270D SIM

Calibration:

1704025

Analyte quantified by quadratic equation type calibration.

Benzo (a) pyrene
Benzo (e) pyrene-d12

This affected the following samples:

Outfall 003
S703654-ICV1
S705742-CCV1

Sample Acceptance Check Form

Client: Gulf Oil L.P.
Project: Gulf Terminal - Chelsea, MA / Gulf Chelsea
Work Order: SC35772
Sample(s) received on: 6/13/2017

The following outlines the condition of samples for the attached Chain of Custody upon receipt.

	<u>Yes</u>	<u>No</u>	<u>N/A</u>
Were custody seals present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Were custody seals intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Were samples received at a temperature of $\leq 6^{\circ}\text{C}$?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were samples refrigerated upon transfer to laboratory representative?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were sample containers received intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were samples accompanied by a Chain of Custody document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did sample container labels agree with Chain of Custody document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were samples received within method-specific holding times?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Summary of Hits

Lab ID: SC35772-01

Client ID: Outfall 003

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
Total Suspended Solids	3.7		0.5	mg/l	SM2540D (11)

Please note that because there are no reporting limits associated with hazardous waste characterizations or micro analyses, this summary does not include hits from these analyses if included in this work order.

Sample Identification

Outfall 003

SC35772-01

Client Project #

Gulf Chelsea

Matrix

Surface Water

Collection Date/Time

09-Jun-17 15:00

Received

13-Jun-17

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
Volatile Organic Compounds													
<u>Volatile Organic Aromatics by SW846 8260</u>													
<u>Prepared by method SW846 5030 Water MS</u>													
71-43-2	Benzene	< 1.0		µg/l	1.0	0.3	1	SW846 8260C	14-Jun-17	14-Jun-17	GMA	1709889	
91-20-3	Naphthalene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
<i>Surrogate recoveries:</i>													
460-00-4	4-Bromofluorobenzene	92			70-130 %			"	"	"	"	"	
2037-26-5	Toluene-d8	101			70-130 %			"	"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	106			70-130 %			"	"	"	"	"	
1868-53-7	Dibromofluoromethane	104			70-130 %			"	"	"	"	"	
Semivolatile Organic Compounds by GCMS													
<u>SVOCs by SIM</u>													
<u>Prepared by method SW846 3510C</u>													
50-32-8	Benzo (a) pyrene	< 0.050		µg/l	0.050	0.020	1	SW846 8270D SIM	16-Jun-17	22-Jun-17	MSL	1710060	
91-20-3	Naphthalene	< 0.050		µg/l	0.050	0.021	1	"	"	"	"	"	
<i>Surrogate recoveries:</i>													
205440-82-0	Benzo (e) pyrene-d12	62			30-130 %			"	"	"	"	"	
Extractable Petroleum Hydrocarbons													
<u>Prepared by method SW846 3510C</u>													
	Oil & Grease	< 1.00	OG	mg/l	1.00	0.915	1	EPA 1664B	20-Jun-17	20-Jun-17	KK	1710279	X
General Chemistry Parameters													
	pH	7.79	pH	pH Units			1	ASTM D 1293-99B	13-Jun-17 18:00	13-Jun-17 18:00	BD	1709878	X
	Total Suspended Solids	3.7		mg/l	0.5	0.2	1	SM2540D (11)	16-Jun-17	20-Jun-17	CMB	1710067	X

This laboratory report is not valid without an authorized signature on the cover page.

Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<u>SW846 8260C</u>										
Batch 1709889 - SW846 5030 Water MS										
<u>Blank (1709889-BLK1)</u>					<u>Prepared & Analyzed: 14-Jun-17</u>					
Benzene	< 1.0		µg/l	1.0						
Naphthalene	< 1.0		µg/l	1.0						
<i>Surrogate: 4-Bromofluorobenzene</i>	45.3		µg/l		50.0		91	70-130		
<i>Surrogate: Toluene-d8</i>	51.2		µg/l		50.0		102	70-130		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	52.7		µg/l		50.0		105	70-130		
<i>Surrogate: Dibromofluoromethane</i>	52.2		µg/l		50.0		104	70-130		
<u>LCS (1709889-BS1)</u>					<u>Prepared & Analyzed: 14-Jun-17</u>					
Benzene	20.0		µg/l		20.0		100	70-130		
Naphthalene	16.8		µg/l		20.0		84	70-130		
<i>Surrogate: 4-Bromofluorobenzene</i>	52.8		µg/l		50.0		106	70-130		
<i>Surrogate: Toluene-d8</i>	51.1		µg/l		50.0		102	70-130		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	49.7		µg/l		50.0		99	70-130		
<i>Surrogate: Dibromofluoromethane</i>	51.2		µg/l		50.0		102	70-130		
<u>LCS Dup (1709889-BSD1)</u>					<u>Prepared & Analyzed: 14-Jun-17</u>					
Benzene	19.8		µg/l		20.0		99	70-130	1	20
Naphthalene	19.2		µg/l		20.0		96	70-130	13	20
<i>Surrogate: 4-Bromofluorobenzene</i>	52.7		µg/l		50.0		105	70-130		
<i>Surrogate: Toluene-d8</i>	51.0		µg/l		50.0		102	70-130		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	48.2		µg/l		50.0		96	70-130		
<i>Surrogate: Dibromofluoromethane</i>	50.0		µg/l		50.0		100	70-130		

Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<u>EPA 1664B</u>										
Batch 1710279 - SW846 3510C										
<u>Blank (1710279-BLK1)</u>					<u>Prepared & Analyzed: 20-Jun-17</u>					
Oil & Grease	< 1.02		mg/l	1.02						
<u>LCS (1710279-BS1)</u>					<u>Prepared & Analyzed: 20-Jun-17</u>					
Oil & Grease	35.0		mg/l	1.00	39.7		88	78-114		

General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<u>ASTM D 1293-99B</u>										
Batch 1709878 - General Preparation										
<u>Reference (1709878-SRM1)</u>					<u>Prepared & Analyzed: 13-Jun-17</u>					
pH	6.03		pH Units		6.00		100	97.5-102.5		
<u>Reference (1709878-SRM2)</u>					<u>Prepared & Analyzed: 13-Jun-17</u>					
pH	5.99		pH Units		6.00		100	97.5-102.5		
<u>SM2540D (11)</u>										
Batch 1710067 - General Preparation										
<u>Blank (1710067-BLK1)</u>					<u>Prepared: 16-Jun-17 Analyzed: 20-Jun-17</u>					
Total Suspended Solids	< 0.5		mg/l	0.5						
<u>LCS (1710067-BS1)</u>					<u>Prepared: 16-Jun-17 Analyzed: 20-Jun-17</u>					
Total Suspended Solids	98.0		mg/l	10.0	100		98	90-110		

Notes and Definitions

dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference
OG	The required Matrix Spike and Matrix Spike Duplicate (MS/MSD) for Oil & Grease method 1664B can only be analyzed when the client has submitted sufficient sample volume. An extra liter per MS/MSD is required to fulfill the method QC criteria. Please refer to Chain of Custody and QC Summary (MS/MSD) of the Laboratory Report to verify ample sample volume was submitted to fulfill the requirement.
pH	The method for pH does not stipulate a specific holding time other than to state that the samples should be analyzed as soon as possible. For aqueous samples the 40 CFR 136 specifies a holding time of 15 minutes from sampling to analysis. Therefore all aqueous pH samples not analyzed in the field are considered out of hold time at the time of sample receipt. All soil samples are analyzed as soon as possible after sample receipt.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

SPECTRUM ANALYTICAL, INC.

HANIBAL TECHNOLOGY

CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:

- ☒ Standard TAT - 7 to 10 business days
- ☐ Rush TAT - Date Needed: _____
- All TATs subject to laboratory approval
- Mm. 24-hr notification needed for rushes
- Samples disposed after 60 days unless otherwise instructed.

Report To: Andrew Adams

Gulf Oil LP

281 Eastern Ave

Chelsea, MA 02150

Telephone #: 617.884.5980

Project Mgr: Andrew Adams

Invoice To: Christopher Gill

Gulf Oil LP

80 William St, Suite 400

Wellesley, MA 02481-3705

P.O. No.: _____ Quote/RON: _____

Project No: _____

Site Name: _____

Location: _____

Sampler(s): _____

Gulf Chelsea

Gulf Chelsea Terminal

281 Eastern Ave, Chelsea

Andrew Adams

State: MA

F=Field Filtered 1=N₂S₂O₃ 2=HCl 3=H₂SO₄ 4=HNO₃ 5=NaOH 6=Ascorbic Acid
7=CH₃OH 8=NaHSO₄ 9=Deionized Water 10=H₂PO₄ 11=none 12=_____

DW=Drinking Water GW=Groundwater SW=Surface Water WW=Waste Water

O=Oil SO=Soil SI=Sludge A=Indoor/Ambient Air SG=Soil Gas

X1=_____ X2=_____ X3=_____

G=Grab

C=Composite

Lab ID:	Sample ID:	Date:	Time:	Type
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SC357721 Outfall 003 6/9/17 1500 G SW

Outfall 003 6/9/17 1500 G SW

Outfall 003 6/9/17 1500 G SW

Outfall 003 6/9/17 1500 G SW

Outfall 003 6/9/17 1500 G SW

Outfall 003 6/9/17 1500 G SW

Outfall 003 6/9/17 1500 G SW

Outfall 003 6/9/17 1500 G SW

Outfall 003 6/9/17 1500 G SW

Outfall 003 6/9/17 1500 G SW

Outfall 003 6/9/17 1500 G SW

Containers

of VOA Vials

of Amber Glass

of Clear Glass

of Plastic

List Preservative Code below:

11 3 2 11

Analysis

TSS, pH

O&G

VOCs (benzene & naphthalene)

PAH (benz(a) pyrene & naphthalene)

Check if chlorinated

MA DEP MCP CAM Report? ☐ Yes ☐ No
CT DRH RCP Report? ☐ Yes ☐ No
Standard ☒ No QC
DQA* ☐ ASP A* ☐ ASP B*
NJ Reduced* ☐ NJ Full*
Tier II* ☐ Tier IV*
Other: _____
State-specific reporting standards: _____

Required M.L.s:

benzene 2 µg/L

naphthalene 5 µg/L

benzo(a)pyrene 0.1 µg/L

Revised by:

Received by:

Date:

Time:

Temp °C

☐ EDD format: _____

☒ E-mail to: aadams@gulfoil.com, cgill@gulfoil.com

Condition upon receipt:

Custody Seals

☐ Present ☐ Intact ☐ Broken

☐ Ambient ☐ Iced ☒ Refrigerated

☐ DI VOA Frozen ☐ Soil for Frozen

Batch Summary

1709878

General Chemistry Parameters

1709878-SRM1
1709878-SRM2
SC35772-01 (Outfall 003)

1709889

Volatile Organic Compounds

1709889-BLK1
1709889-BS1
1709889-BSD1
SC35772-01 (Outfall 003)

1710060

Semivolatile Organic Compounds by GCMS

SC35772-01 (Outfall 003)

1710067

General Chemistry Parameters

1710067-BLK1
1710067-BS1
SC35772-01 (Outfall 003)

1710279

Extractable Petroleum Hydrocarbons

1710279-BLK1
1710279-BS1
SC35772-01 (Outfall 003)

S703654

Semivolatile Organic Compounds by GCMS

S703654-CAL1
S703654-CAL2
S703654-CAL3
S703654-CAL4
S703654-CAL5
S703654-CAL6
S703654-CAL7
S703654-CAL8
S703654-CAL9
S703654-CALA
S703654-CALB
S703654-ICV1
S703654-LCV1
S703654-LCV2
S703654-TUN1

S704674

Volatile Organic Compounds

S704674-CAL1
S704674-CAL2
S704674-CAL3

S704674-CAL4
S704674-CAL5
S704674-CAL6
S704674-CAL7
S704674-CAL8
S704674-CAL9
S704674-ICV1
S704674-LCV1
S704674-LCV2
S704674-LCV3
S704674-TUN1

S705362

Volatile Organic Compounds

S705362-CCV1
S705362-TUN1

S705742

Semivolatile Organic Compounds by GCMS

S705742-CCV1
S705742-TUN1